

IN THE CLAIMS

Amend the claims as follows:

1. (currently amended) A sensor, comprising a substrate and a membrane connected to said substrate and having a membrane surface, said membrane surface having a coating comprising a reaction agent for interacting ~~on which an interaction with a medium occurs~~ in a manner to deflect said membrane relative to said substrate, a first electrode on the substrate and spaced from the membrane, and a second electrode on or a part of the membrane and from which first electrode and second electrode a capacitance measurement can be made.
2. (currently amended) The sensor of claim 1 wherein said membrane has a convex or concave shape before said interaction interacting.
3. (previously presented) The sensor of claim 1 wherein said surface has a chemical or biomolecular reaction agent thereon such that a reaction with species of an analyte occurs on said surface in a manner to deflect said membrane relative to said substrate.
4. (currently amended) The sensor of claim 1 wherein said membrane has a deflectable convex or concave shape before said interaction interacting.
5. (canceled)

6. (canceled)

7. (canceled)

8. (currently amended) The sensor of claim [[7]] 1 wherein the coating includes reaction molecules.

9. (currently amended) The sensor of claim [[7]] 8 wherein the molecules provide chemical reaction sites.

10. (currently amended) The sensor of claim [[7]] 8 wherein the molecules provide biomolecular reaction sites.

11. (currently amended) The sensor of claim 1 wherein the membrane includes an interior surface subjected to gas pressure to impart inflate the membrane to a convex shape ~~to said surface~~ and an exterior surface having [[a]] the reaction agent thereon such that a reaction with species of an analyte occurs on said exterior surface in a manner to deflect said membrane relative to said substrate while said membrane has said convex shape imparted thereto by said gas pressure inflation.

12. (previously presented) The sensor of claim 1 wherein the membrane is an elastomeric material.

13. (currently amended) The sensor of claim 1 wherein the membrane includes one or more metallic layers imparting a convex or concave shape to said membrane before said interaction interacting.

14. (original) The sensor of claim 1 wherein the membrane comprises a ceramic material.

15. (original) The sensor of claim 14 wherein the ceramic material comprises silicon oxide or silicon nitride.

16. (original) The sensor of claim 1 wherein the medium comprises an analyte.

17. (currently amended) A sensor comprising a substrate and a membrane connected to said substrate and having a surface on which an interaction with a coating comprising a reaction agent for interacting with a medium occurs in a manner to deflect said membrane relative to said substrate, a first electrode on the substrate and spaced from the membrane, and a second electrode on or a part of the membrane and from which first electrode and second electrode a capacitance measurement can be made, and further having a dummy membrane connected to the substrate and having a surface on which no interaction with said medium occurs, a third electrode on the substrate spaced from the dummy membrane, and a fourth electrode on or a part of the dummy membrane and from which third electrode and fourth electrode a capacitance measurement can be made.

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18. (original) A sensor, comprising a sensor area according to claim 1 and an actuation area in gas flow communication with the sensor area and having an actuation membrane spaced from the substrate by a gas-containing gap and movable in a manner to gas pressurize said sensor area when said actuation membrane is moved toward said substrate.

19. (currently amended) A transducer, comprising a substrate and a membrane having a surface with a coating comprising a reaction agent and peripherally connected to said substrate and being deflectable relative to said substrate by an interaction of the reaction agent with a medium occurring on said membrane surface, a first electrode on the substrate and spaced from the membrane, and a second electrode on or part of the membrane and from which first electrode and second electrode a capacitance measurement can be made.

20. (currently amended) An actuator, comprising a substrate having a substrate electrode and an actuation membrane having a membrane electrode and spaced from the substrate by a gas-containing gap from said substrate, said actuation membrane being movable toward the substrate to expel gas from the gap by energization of the substrate electrode and the membrane electrode, said gas being expelled from the gap through a passage of said substrate.

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21. (currently amended) A method of sensing, comprising producing an interaction between a medium and a reaction agent of a coating on a surface of a membrane connected to a substrate, deflecting the membrane in response to the interaction, and detecting the deflection of the membrane by measuring a change in capacitance between a first electrode on the substrate and a second electrode on or a part of the membrane.

22. (original) The method of claim 21 wherein said interaction comprises a chemical and/or biomolecular reaction between an agent on said surface and molecules in an analyte.

23. (currently amended) A method of sensing, comprising producing an interaction between a medium and a reaction agent of a coating on a surface of a membrane connected to a substrate while said membrane is inflated by gas pressurized pressure to impart a deflectable shape thereto, deflecting the membrane in response to the interaction, and detecting the deflection of the membrane by measuring a change in capacitance between a first electrode on the substrate and a second electrode on or a part of the membrane.

24. (canceled)

25. (canceled)

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26. (currently amended) A method of generating a flow of gas, comprising moving an actuation membrane spaced from a substrate by a gas-containing gap toward said substrate to expel gas from the gap by energizing an electrode on the substrate and an electrode on the membrane wherein the gas is expelled from the gap through a passage of the substrate.

27. (canceled)

28. (currently amended) The sensor of claim 1 having said surface on which the reaction agent interaction occurs interacts with a liquid or gas medium in a manner to deflect said membrane relative to said substrate.